

## REMARKS

In response to the Office Action dated May 28, 2008, Applicants respectfully request reconsideration based on the above claim amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-15 are pending in the present Application. Claims 13-15 are withdrawn as being directed to non-elected subject matter in the March 4, 2008 response to Restriction Requirement of February 12, 2008, Claims 1, 5, 7, 8, 13 and 14 are amended and Claim 3 is cancelled without prejudice, leaving Claims 1, 2 and 4-12 for consideration upon entry of the present amendment and following remarks.

Support for the claim amendments can at least be found in the specification, the figures, and the claims as originally filed. Particularly, support for amended Claims 1 and 7 is at least found in originally filed Claim 3 (now cancelled), and in Figures 1A-1C.

The specification is amended to correct an inadvertent typographical error. Consideration and entry of the amendment to the specification are respectfully requested.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

### **Claim Rejections – 35 U.S.C. §112**

Claims 1-12 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement, such that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, has possession of the invention.

Claims 1-12 are further rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular:

- Claim 1 recites “a data wire insulated from the gate wire and intersecting the *data wire*,” and it is stated that the disclosure lacks adequate description.

In response, Applicants hereinabove amend Claim 1 to change “intersecting the *data wire*” to “intersecting the *gate wire*.” Support for amended Claim 1 is at least found in originally filed Claims 7 and 10, in Figure 1A, and in the specification at page 2, line 26.

- Claim 1 as reciting “a gate wire including a plurality of gate portions, and a thin film transistor connected to the gate wire and the data wire,” is stated as appearing to imply that the recited gate portions are not part of the thin film transistor, and the claim fails to clarify whether the recited thin film transistor definitely includes any of the recited gate portions and/or what portions of the recited gate wire the thin film transistor is definitely connected to.

In a non-limiting embodiment of the claimed invention, the gate wire includes gate lines 121, gate electrodes 123, gate pads 125 and gate connections 120. (See, page 5, lines 19-21 and Figures 1A-1C of the disclosure.) Each gate line 121 includes a first gate line portion 121a provided with the gate electrode 123 and the gate pad 125, and a second gate line portion 121b with the gate electrode 123 and without the gate pad 125. (See, page 5, lines 25-29 and Figures 1A-1C of the disclosure.)

In a non-limiting embodiment of the claimed invention, the data wire includes date lines 171, source electrodes 173, drain electrodes 175, data pads 179 and data connections 170. (See, page 7, lines 13-15 and Figures 1A-1C of the disclosure.) Each data line 171 includes a first data line portion 171a provided with the data pad 179, and a second data line portion 171b without the data pad 179. (See, page 7, lines 23-27 and Figures 1A-1C of the disclosure.)

Referring to Figures 1A and 1B of the disclosure, a gate electrode 123 of the gate wire 121, 121a, 121b, 123, 125, 120, the source electrode 173 and drain electrode 175 of the data wire 171, 171a, 171b, 173, 175, 179, 170, semiconductor layer 154 and ohmic contact layers 163, 165 may be considered a “thin film transistor,” for example. The gate electrode 123 of the thin film transistor is disclosed as being connected to the first and second portions 121a, 121b of the gate wire, and the source electrode 173 of the thin film transistor is disclosed as being connected to the first and second data portions 171a, 171b of the data wire. That is, as claimed, the thin film transistor may be considered as not including the gate portions 121a, 121b, and the gate portions 121a, 121b are definitely connected to the gate electrode 123 of the thin film transistor.

Therefore, “a gate wire including a plurality of gate portions, and a thin film transistor connected to the gate wire and the data wire” of Claim 1 is clear, definite and particularly points out and distinctly claims the subject matter which applicant regards as the invention, no further clarification is needed, and specific layers/elements are not required to be specified when there is clear support in the disclosure.

- Claim 5 includes “the data portions” in line 2 which lacks sufficient antecedent basis. In response, Applicants hereinabove amend Claim 5 to depend from Claim 2 where “data portions” are introduced.
- Claim 7 as reciting “a gate insulating layer formed on the gate wire” and that the gate wire includes “a gate connection formed on the same layer as the data wire” are stated as appearing to contradict each other and as lacking full support in the disclosure. Applicants respectfully disagree.

In a non-limiting embodiment of the claimed invention, the gate wire includes gate lines 121, gate electrodes 123, gate pads 125 and gate connections 120. (See, page 5, lines 19-21 and Figures 1A-1C of the disclosure.) Each gate line 121 includes a first gate line portion 121a provided with the gate pad 125, and a second gate line portion 121b without the gate pad 125. (See, page 5, lines 25-29 and Figures 1A-1C of the disclosure.)

In a non-limiting embodiment of the claimed invention, the data wire includes date lines 171, source electrodes 173, drain electrodes 175, data pads 179 and data connections 170. (See, page 7, lines 13-15 and Figures 1A-1C of the disclosure.) Each data line 171 includes a first data line portion 171a provided with the data pad 179, and a second data line portion 171b without the data pad 179. (See, page 7, lines 23-27 and Figures 1A-1C of the disclosure.)

The gate connections 120 are formed on the same layer as the data pads 179 and are connected to the portions 121a,121b of the gate lines 121 through first contact holes 141. (See, page 6, lines 1-3 and Figures 1A-1C of the disclosure.) That is, since the data pads 179 are clearly disclosed as part of the “data wire” in the claimed invention, “a gate connection formed on the same layer as the data wire” is not contradictory to “a gate insulating layer formed on the gate wire,” and there is full support in the disclosure for the recited limitations in Claim 7.

- Claim 7 as reciting “a third contact hole exposing the data wire” is stated as failing to clarify whether the third contact hole exposes the entirety of the data wire, and/or a portion of the recited data wire is definitely exposed by the recited third contact opening.

In a non-limiting embodiment, the data wire includes date lines 171, source electrodes 173, drain electrodes 175, data pads 179 and data connections 170. (See, page 7, lines 13-15 and Figures 1A-1C of the disclosure.) Contact hole 181 exposes the drain electrode 175. (See, page 8, lines 1-5 and Figures 1A-1C of the disclosure.) Since the drain electrode 175 is clearly disclosed as part of the “data wire” in the claimed invention, “a third contact hole exposing the data wire” of Claim 7 is clear, definite and particularly points out and distinctly claims the subject matter which applicant regards as the invention, no further clarification is needed, and specific layers/elements are not required to be specified when there is clear support in the disclosure.

- Claim 8 as reciting “a data connection formed on the same layer as the gate wire” is stated as lacking full support in the disclosure. Applicants respectfully disagree.

Referring to the above discussion of the non-limiting embodiments, the disclosure further states the data connection 170 are disposed on the same layer as the gate wire 121, 123 and 125, and connected to the data lines 171 through second contact holes 143. (See, page 7, lines 28-30 and Figures 1A-1C of the disclosure.) That is, since the gate line 121, gate electrode 123 and gate pad 125 are clearly disclosed as part of the “gate wire” in the claimed invention, there is full support for “a data connection formed on the same layer as the gate wire,” of Claim 8.

- Claims 5-8 as reciting “formed on the same layer” is stated as failing to clarify which two layers/elements recited in the claims are definitely formed of/in/from a same layer, rather than the case of one being on the other.

Claim 5 recites “the gate connection is disposed on the same layer as the data portions,” and Claim 7 recites “the gate wire includes first and second gate wire portions and a gate connection formed on the same layer as the data wire.”

In a non-limiting embodiment, a metal layer is formed on a transparent substrate 110 and patterned to form gate wire 121, 123 and 125 and data connections 170. (See, Figures 2A-2C, and page 9, lines 9-11 of the disclosure.) In Figures 1B and 1C, the gate wire 121, 123 and 125 and data connections 170 are all “disposed on” the insulating substrate. That is, the gate

wire 121, 123 and 125 and data connections 170 are “formed on” and “disposed on” a same layer, e.g., the insulating substrate 110. Therefore, “the gate connection is disposed on the same layer as the data portions” of Claim 5, and “the gate wire includes first and second gate wire portions and a gate connection formed on the same layer as the data wire” of Claim 7 are clear, definite and particularly points out and distinctly claims the subject matter which applicant regards as the invention, no further clarification is needed, and specific layers/elements are not required to be specified when there is clear support in the disclosure.

Claim 6 recites “the data connection is disposed on the same layer as the gate portions,” and Claim 8 recites “the data wire includes first and second data wire portions and a data connection formed on the same layer as the gate wire.”

In a non-limiting embodiment, a metal layer is formed on the substrate provided with the ohmic contact layer pattern 160a, and patterned to form data wire 171, 173, 175 and 179 and gate connections 120. (See, Figures 5A-5C, and page 9, line 29 to page 10, line 2 of the disclosure.) In Figures 1B and 1C, the data wire 171, 173, 175 and 179 and gate connections 120 are all “disposed on” at least the gate insulating layer 140. That is, the gate wire 121, 123 and 125 and data connections 170 are “formed on” and “disposed on” a same layer, e.g., the insulating layer 140. Therefore, “the data connection is disposed on the same layer as the gate portions” of Claim 6, and “the data wire includes first and second data wire portions and a data connection formed on the same layer as the gate wire” of Claim 8 are clear, definite and particularly points out and distinctly claims the subject matter which applicant regards as the invention, no further clarification is needed, and specific layers/elements are not required to be specified when there is clear support in the disclosure.

Applicants respectfully submit that Claims 1-12 comply with the requirements of 35 U.S.C. §112, first and second paragraphs, for all the reasons discussed above. Entry of the respective claim amendments, reconsideration and withdrawal of the relevant claim rejections over §112 first and second paragraphs are respectfully requested.

**Claim Rejections Under 35 U.S.C. §102**

**Regarding Claims 1-6**

Claims 1-6 are rejected under 35 U.S.C. §102(b) as being anticipated by Koyama, U.S. Patent Publication No. 2001/0017372 A1 (hereinafter “Koyama”). Applicants respectfully traverse the rejections.

In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1274 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Amended Claim 1 recites, *inter alia*:

“a gate wire formed on the insulating substrate and including a plurality of gate portions and a gate connection connecting the gate portions;  
a data wire insulated from the gate wire and intersecting the gate wire;  
*a gate insulating layer insulating the gate wire and the data wire, and including a plurality of portions, and a portion of the gate insulating layer is disposed between the plurality of gate portions and the gate connection.*”

Regarding Claim 1 in the instant Office action at Page 5, connecting wiring 519/gate wiring 516/gate electrode 513a/513b is considered the “gate wire,” gate electrodes 513a/513b are considered the “plurality of gate portions,” connecting wiring 519 or gate wiring 516 is considered the “gate connection connecting the gate portions,” and source wiring 512/connecting wiring 520 is considered the “data wire.” Regarding Claim 3 in the instant Office action at Page 5, gate insulating film 511 in Figure 5 of Koyama is considered as disclosing the “gate insulating layer.”

Koyama discloses the gate electrodes 513a, 513b are integrated with the shared gate wiring 516. (See, paragraph 0071 and Figure 6 of Koyama.)

If the gate electrodes 513a, 513b shown in Figure 6 of Koyama are considered as the “plurality of gate portions,” the gate wiring 516 may be considered as “the gate connection connecting” the multiple gate electrodes 513a, 513b. As disclosed by Koyama the gate wiring 516 is integrated, and in a same layer as the gate electrodes 513a, 513b. No portion of the gate insulating film 511 in Figure 5 of Koyama is disposed between the gate electrodes 513a, 513b and the gate wiring 516 as claimed. Therefore, Koyama *does not disclose a gate insulating layer insulating the gate wire and the data wire, and including a plurality of portions, and a portion of the gate insulating layer is disposed between the plurality of gate portions and the gate connection as arranged* in amended Claim 1.

Alternatively, if the gate electrodes 513a, 513b/gate wiring 516 illustrated in the same layer as disclosed by Koyama are considered as the “plurality of gate portions,” the connecting wiring 519 may be considered as “the gate connection connecting” multiple gate wirings 516. No portion of the gate insulating film 511 in Figure 5 of Koyama is disposed between the gate electrodes 513a, 513b/gate wiring 516 and the connecting wiring 519. Therefore, Koyama still *does not disclose a gate insulating layer insulating the gate wire and the data wire, and including a plurality of portions, and a portion of the gate insulating layer is disposed between the plurality of gate portions and the gate connection as arranged* in amended Claim 1.

Thus, Koyama *fails to disclose all of the limitations as arranged* in amended Claim 1. Accordingly, Koyama does not anticipate amended Claim 1. Applicant respectfully submits that amended Claim 1 is not further rejected or objected, and is therefore allowable. As Claims 2 and 4-6 variously depend from Claim 1, and inherit all of the limitations of amended Claim 1, they are correspondingly allowable. Entry of the claim amendments, reconsideration and allowance of Claims 1, 2 and 4-6 are respectfully requested.

#### Regarding Claims 7-12

Applicants respectfully note that Claims 7-12 are not rejected over prior art, and understand Claims 7-12 to be allowable.

For all the reasons stated above regarding Claims 1-6, Koyama *fails to disclose all of the limitations as arranged* in amended Claim 7, and in Claims 8-12 as depending upon Claim 7, and

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accordingly does not anticipate Claim 7 (as amended) and Claims 8-12. Entry of the claim amendments, reconsideration and allowance of Claims 7-12 are respectfully requested.

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

Applicants hereby petition for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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